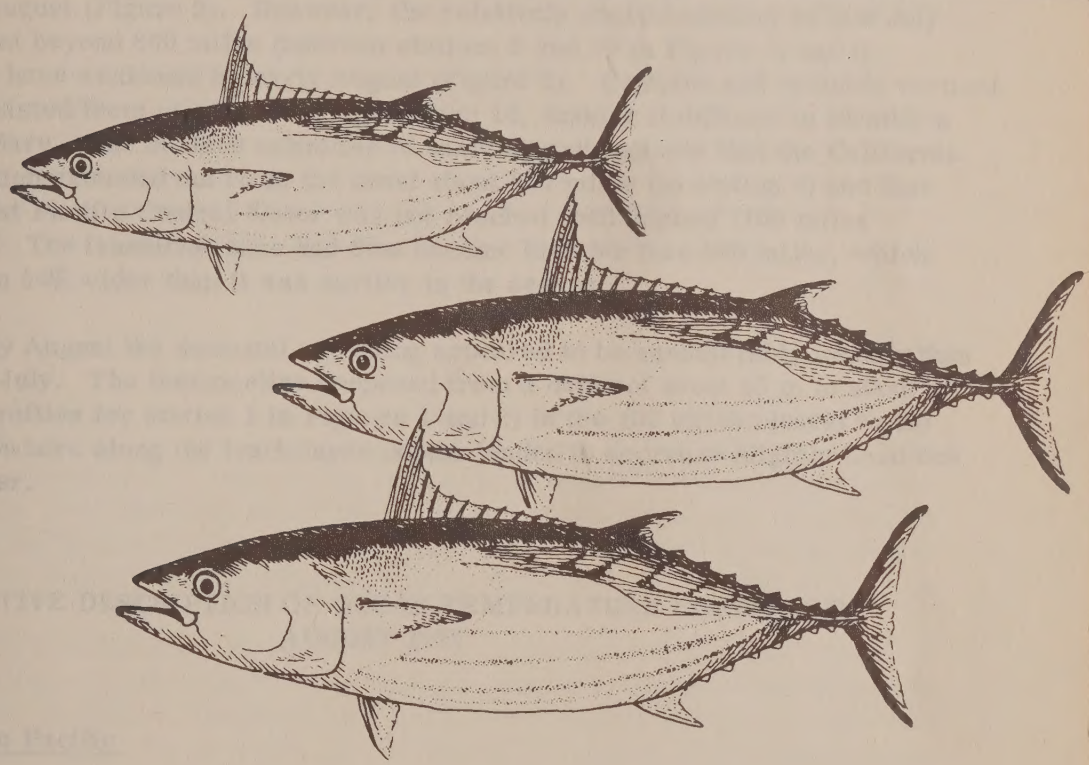
AUGUST 1972, No. 8

FISHING INFORMATION

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



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SUBSURFACE TEMPERATURE STRUCTURE IN THE NORTHEAST PACIFIC OCEAN

In the previous month's issue the persistence of a zone of sharp horizontal changes about 700-800 nautical miles from the California coast and the appearance of eddies or meanders in the California Current region were noted. The crest-trough feature of the isotherms, which indicates the eddies or meanders, continued into early August (Figure 2). However, the relatively sharp boundary in late July lay somewhat beyond 800 miles (between stations 9 and 10 in Figure 1) and it appeared to have weakened by early August (Figure 2). Complex and variable vertical structure existed from station 7 through station 10, making it difficult to identify a single boundary. The surface salinities of early August indicate that the California Current region extended out from the coast about 800 miles (to station 8) and that the Northeast Pacific Central Water was not reached until beyond 1100 miles (station 11). The transition zone had thus become broader than 300 miles, which is more than 50% wider than it was earlier in the season.

By early August the seasonal upwelling appeared to be considerably weaker than in June and July. The thermocline deepened from a depth of about 25 m to about 50 m (see profiles for station 1 in Figures 1 and 2) in the 100 miles closest to the coast. Elsewhere along the track, layer depths tended to decrease slightly from one month earlier.

NARRATIVE DESCRIPTION OF OCEAN TEMPERATURE CONDITIONS AUGUST 1972

Northeastern Pacific

Surface waters over most of the Northeastern Pacific warmed slightly more than normal from July to August 1972, as temperatures approached their seasonal maxima. Consequently, August temperatures were above the long-term means everywhere except in some coastal areas and in the sector north of 40° N and west of 160° W (Figure 7). Positive deviations were largest in areas off Baja California out to 125° W, northwest of Hawaii between 25° N and 35° N, and in smaller patches north of latitude 40° N, between 140° W and 160° W.

Strong coastal winds from Vancouver Island south to Point Reyes gave rise to upwelling and evaporative cooling in near shore waters during the first half of August and precluded a tendency for warming. Coastal temperatures rose when this condition relaxed, toward the end of the month, but not enough to have much effect on the month's average.

Atmospheric pressures over most of the northeastern Pacific were generally below normal in August 1972. The pressure deficit occurred rather uniformly over the field and had little effect on gradients. This is reflected in the fact that the resultant wind field for August 1972 differs little from that of the long-term mean (Figures 3 and 4).

Cloudiness was perhaps the most significant meteorological factor this month affecting heat exchange in those areas where warming was most evident. Off Baja California, particularly, reduced cloud cover permitted incoming radiation at the sea surface to rise well above the long-term mean.

In contrast, incoming radiation was reduced by above-normal cloudiness in the sector north of 40° N and west of 160° W, which was the only large offshore region where seasonal warming was below normal. Intensification of the negative deviations in this region was aided by southward advection of cold temperatures under the action of northwesterly winds. The latter built up behind eastward-moving low pressure systems, maturing near 50° N, 160° to 170° W, in the last 10 days of the month.

Eastern Tropical Pacific

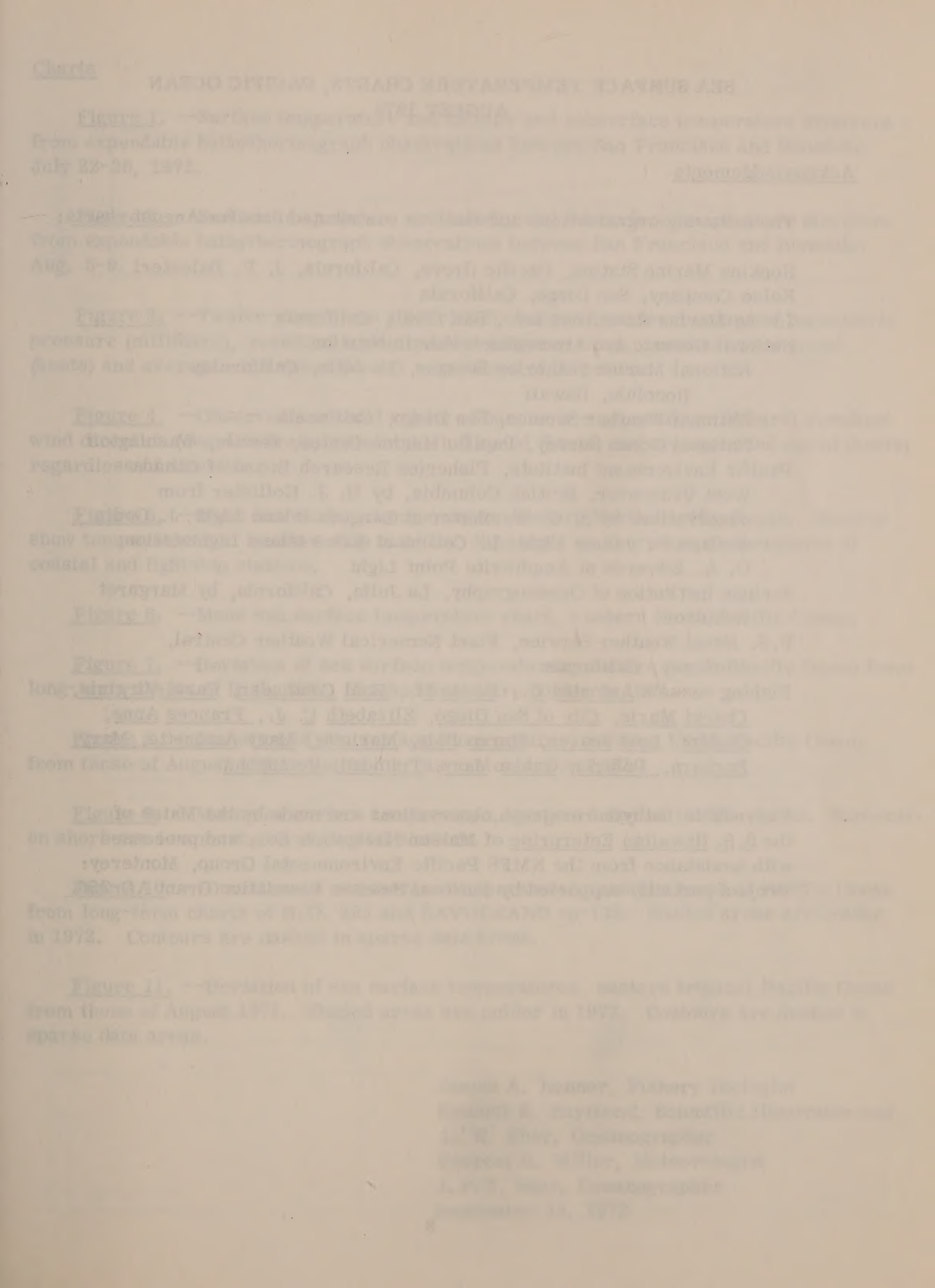
Sea surface temperatures continued to be much above normal off northern Peru and Ecuador out to 90° W and along the equator westward to 140° W. Positive deviations exceeded 6° F over large areas and reached 8° F in several places (Figure 10). Comparison with last year, which had relatively cool equatorial temperatures in August, reveals even greater contrast, with maximum differences of 12° F in the area just southeast of the Galapagos Islands (Figure 11).

As in July, this anomalous condition is probably a consequence of the interruption of southerly and southeasterly equatorial winds owing to a succession of eastward moving low pressure systems. The frequency of tropical intrusions by extra-tropical lows dropped off toward the end of the month and the normal high pressure regime appeared to be returning.

Positive deviations of lesser magnitude also prevailed over other portions of the eastern tropical Pacific, except in a region south of the equator between 155° W and 170° W, and in a zone roughly 100-400 miles off the coasts of Guatemala and Mexico. This zone was the scene of several developing tropical storms during August and such storms typically leave a trail of low surface temperatures, resulting from vigorous wind-induced mixing with cold subsurface water.

Staff, Fishery-Oceanography Investigations
R. Michael Laurs, Leader

Charts



SEA SURFACE TEMPERATURE CHARTS, PACIFIC OCEAN
AUGUST 1972

Acknowledgements

The following organizations and stations contributed data for August charts:

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Living Marine Resources Inc., San Diego, California
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, La Jolla, California; Honolulu, Hawaii
National Weather Service, San Diego, California
National Ocean Survey, Pacific Marine Center, Seattle, Washington
Pacific Environment Institute, Fisheries Research Board of Canada West Vancouver, British Columbia, by H. J. Hollister from observations by S. G. Westhaver at Langara Island Light; J. Godin at Cape St. James Light; L. Collins at Kains Island Lightstation; O. A. Edwards at Amphitrite Point Light
Scripps Institution of Oceanography, La Jolla, California, by Margaret Robinson
U.S. Naval Weather Service, Fleet Numerical Weather Central, Monterey, California
Fishing vessels Antonina C., Bettie M., Bold Contender, Carol Virginia, Cheryl Marie, City of San Diego, Elizabeth C. J., Frances Anne, Gemini, Lois Seaver, Marco Polo, Mariette, Mary Antonette, Mary Barbara, Polaris, Queen Mary, Trinidad, Venturous

Expendable bathythermograph observations are made by the Mates of the S. S. Hawaiian Enterprise of Matson Navigation Co., and processed with assistance from the NMFS Pacific Environmental Group, Monterey: Project partially supported by National Science Foundation Grant AG-256.

Charts

Figure 1. --Surface temperature and salinity and subsurface temperature structure from expendable bathythermograph observations between San Francisco and Honolulu: July 22-26, 1972.

Figure 2. --Surface temperature and salinity and subsurface temperature structure from expendable bathythermograph observations between San Francisco and Honolulu: Aug. 5-9.

Figure 3. --Twelve-year mean (1961-1972) observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots) and average wind speed (knots) regardless of direction.

Figure 4. --Observed sea level values of barometric pressure (millibars) resultant wind direction (degrees true), resultant wind speed (knots) and average wind speed (knots) regardless of direction.

Figure 5. --Mean sea surface temperature, eastern North Pacific Ocean. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 6. --Mean sea surface temperature chart, western North Pacific Ocean.

Figure 7. --Deviation of sea surface temperatures, eastern North Pacific Ocean from long-term charts of H.O. 225. Hatched areas are colder in 1972.

Figure 8. --Deviation of sea surface temperatures, eastern North Pacific Ocean from those of August 1971. Hatched areas are colder in 1972.

Figure 9. --Mean sea surface temperature, eastern tropical Pacific Ocean. Numerals on shore are temperatures at coastal stations.

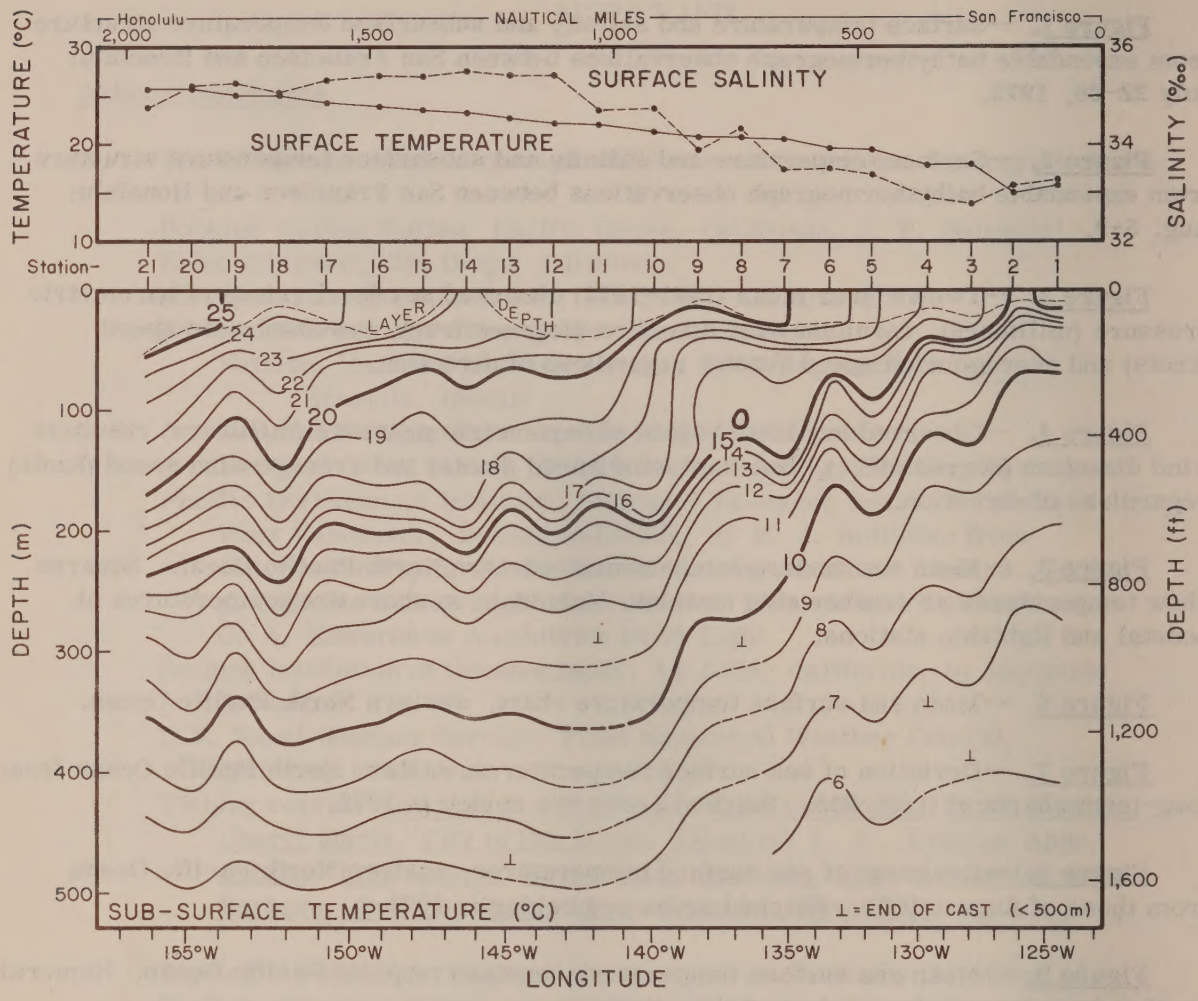
Figure 10. --Deviation of sea surface temperatures, eastern tropical Pacific Ocean from long-term charts of H.O. 225 and NAVOCEANO sp-123. Shaded areas are colder in 1972. Contours are dashed in sparse data areas.

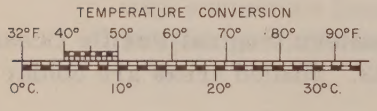
Figure 11. --Deviation of sea surface temperatures, eastern tropical Pacific Ocean from those of August 1971. Shaded areas are colder in 1972. Contours are dashed in sparse data areas.

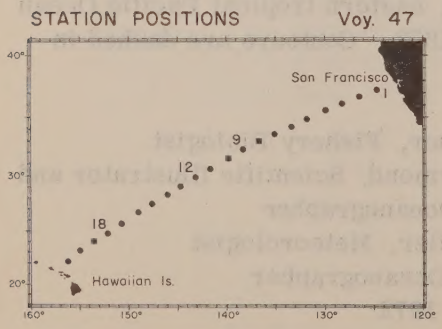
James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator and
L. E. Eber, Oceanographer
Forrest R. Miller, Meteorologist
J. F. T. Saur, Oceanographer
September 13, 1972

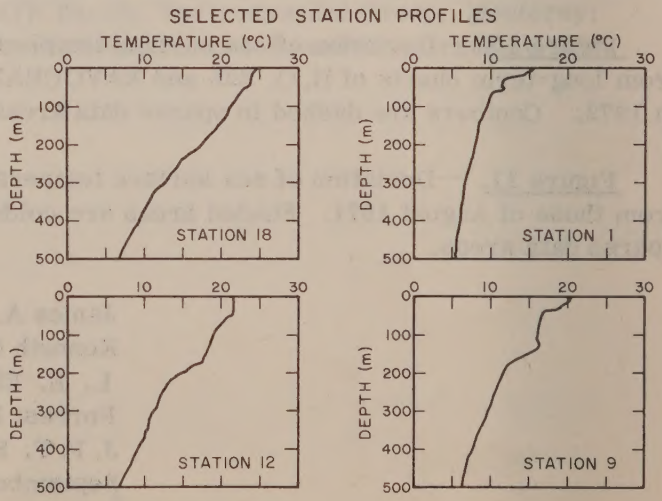
JULY 22-26, 1972
SS HAWAIIAN ENTERPRISE, Voyage 47

FIGURE 1.



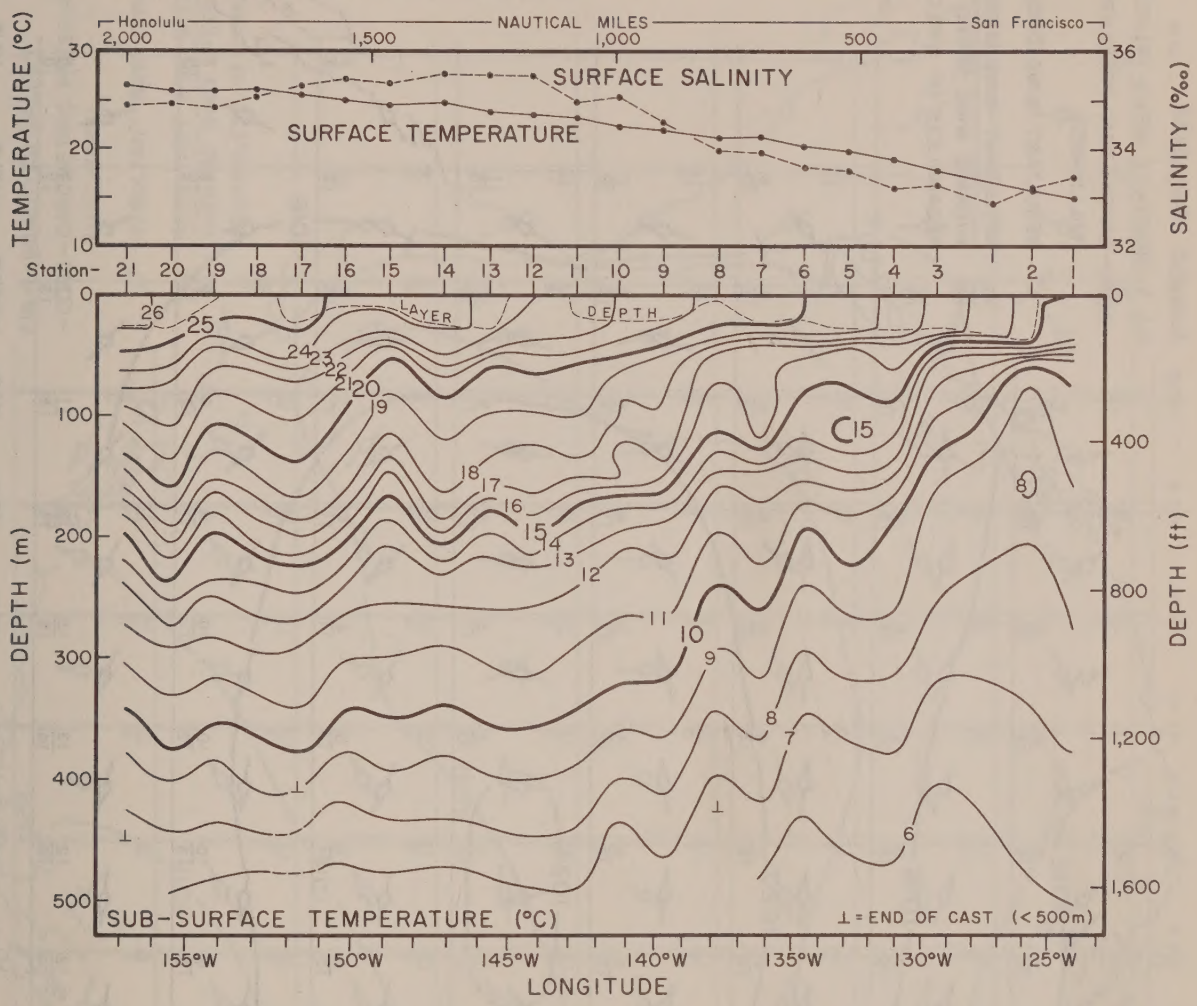


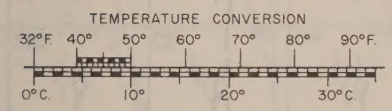


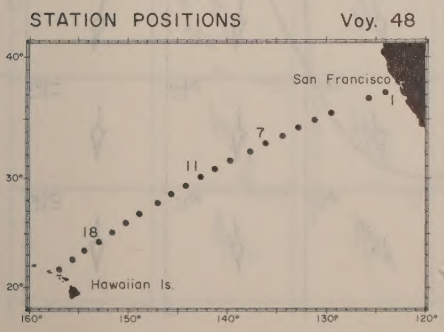


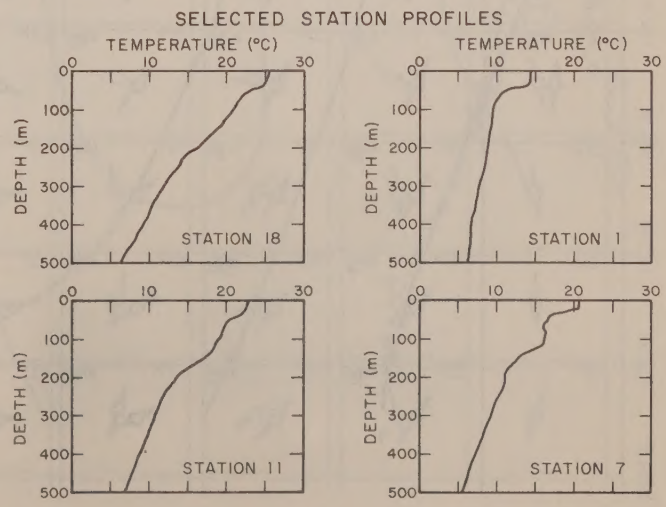
AUGUST 5-9, 1972
SS HAWAIIAN ENTERPRISE, Voyage 48

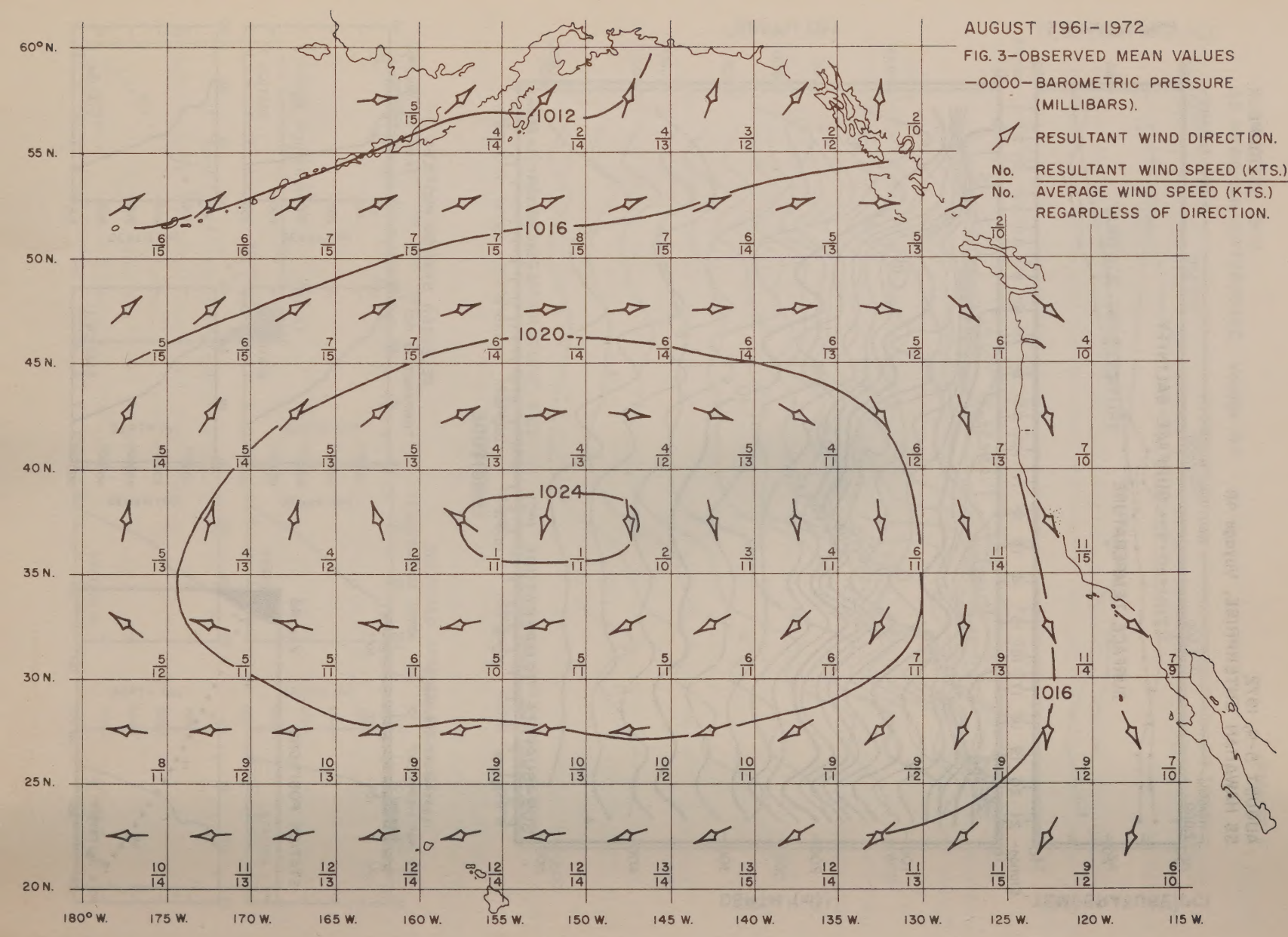
FIGURE 2.

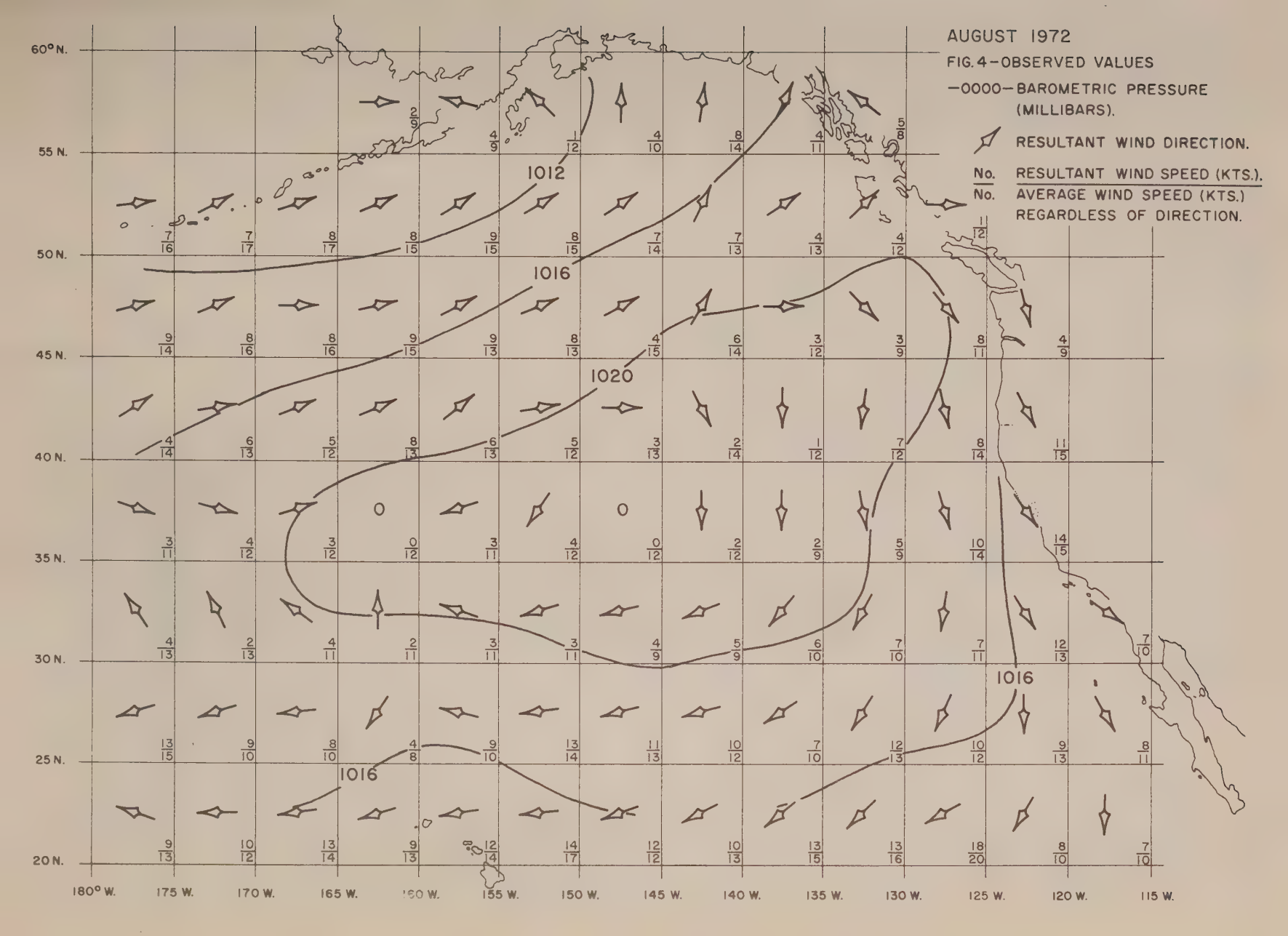


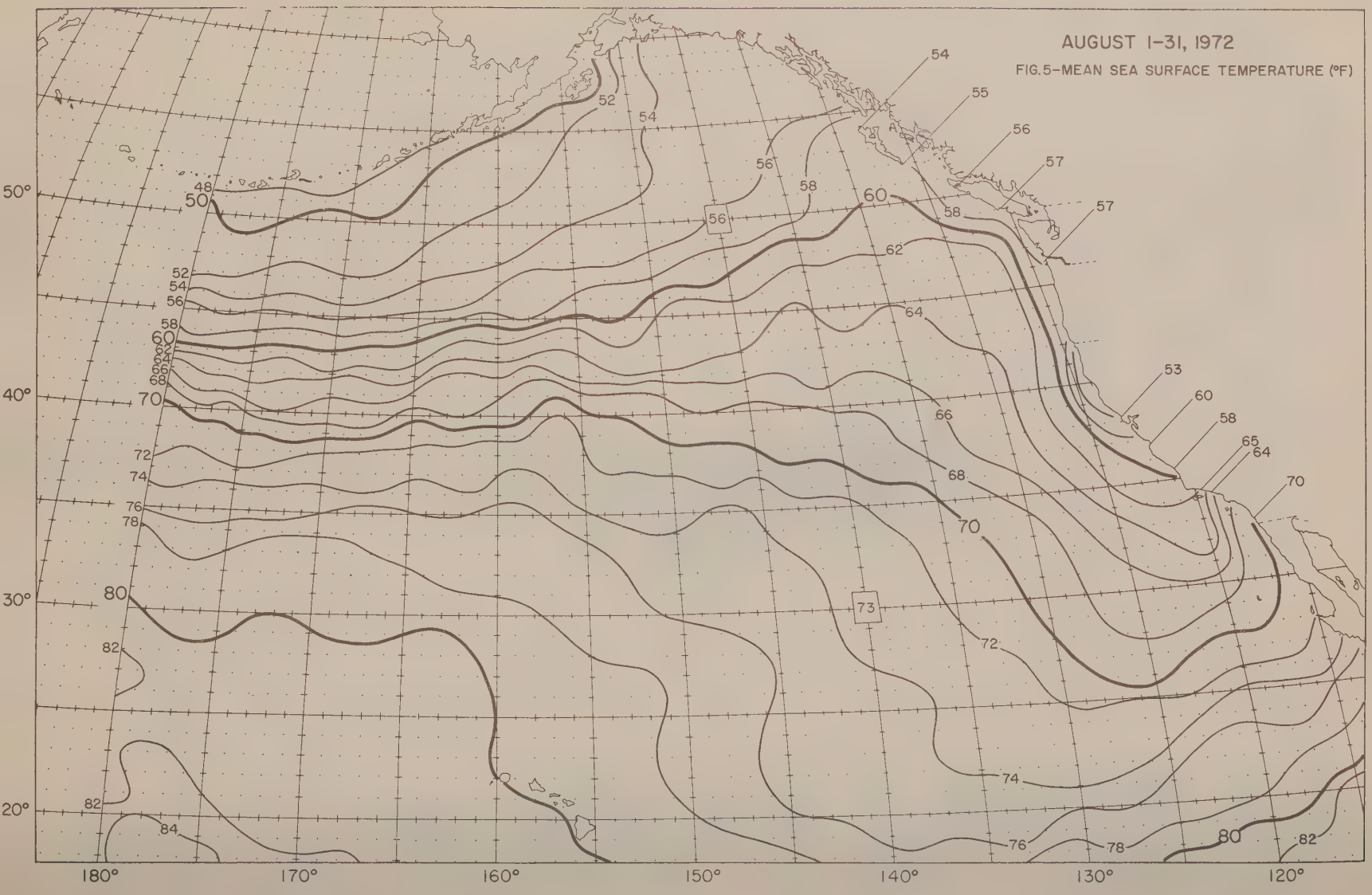






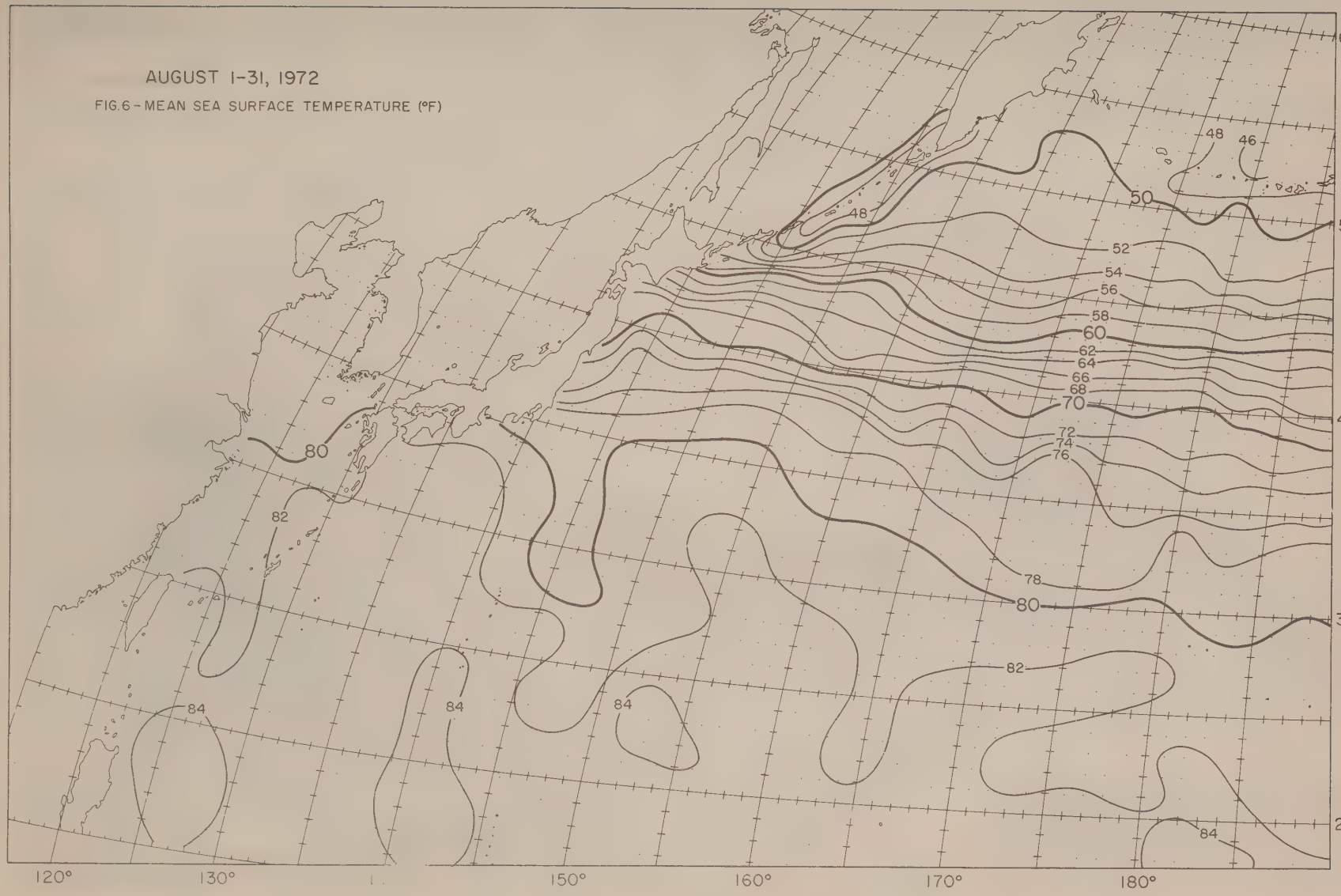

AUGUST 1961-1972
FIG. 3-OBSERVED MEAN VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1024
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

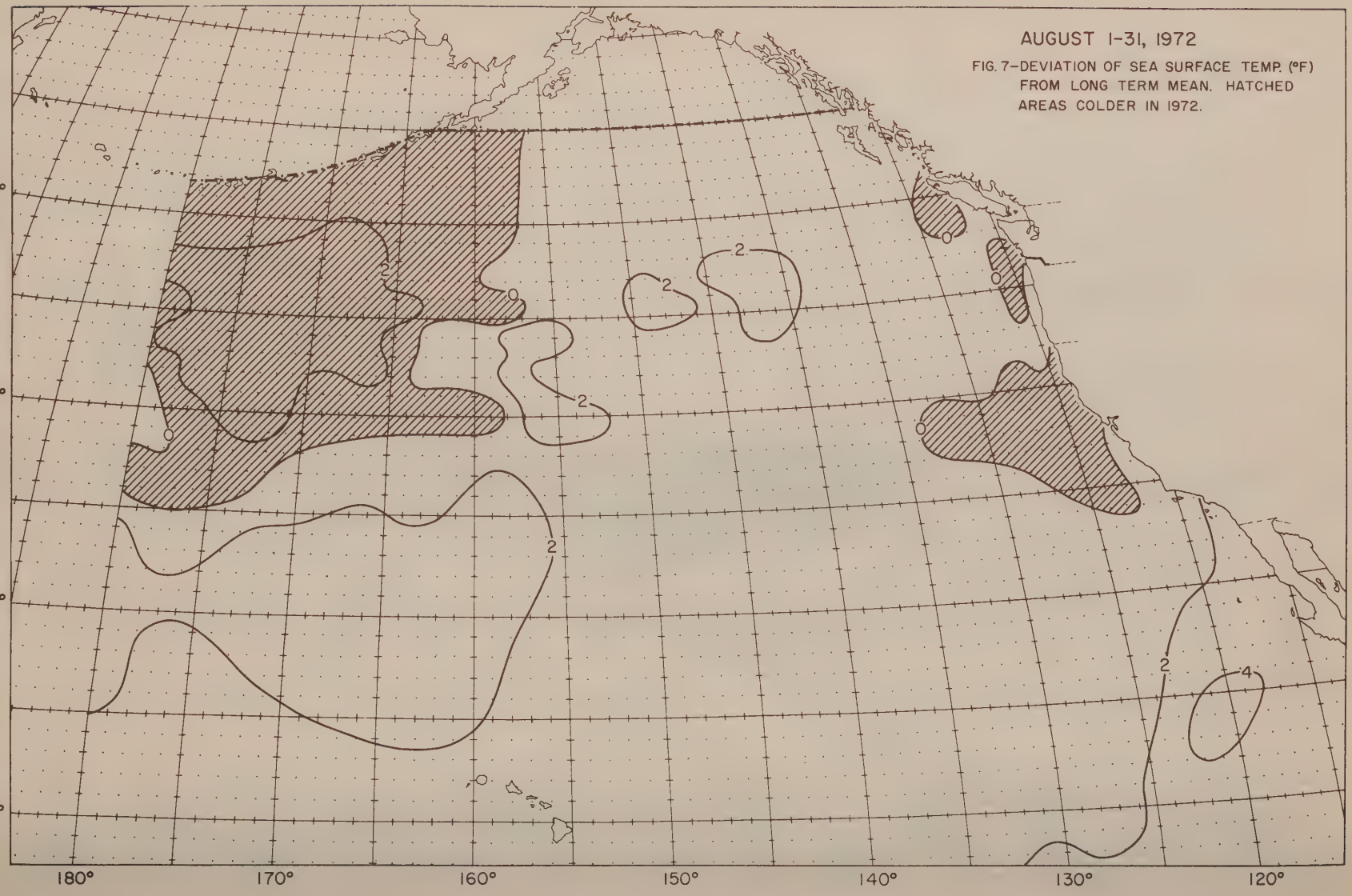

AUGUST 1972
FIG. 4 – OBSERVED VALUES
–0000– BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

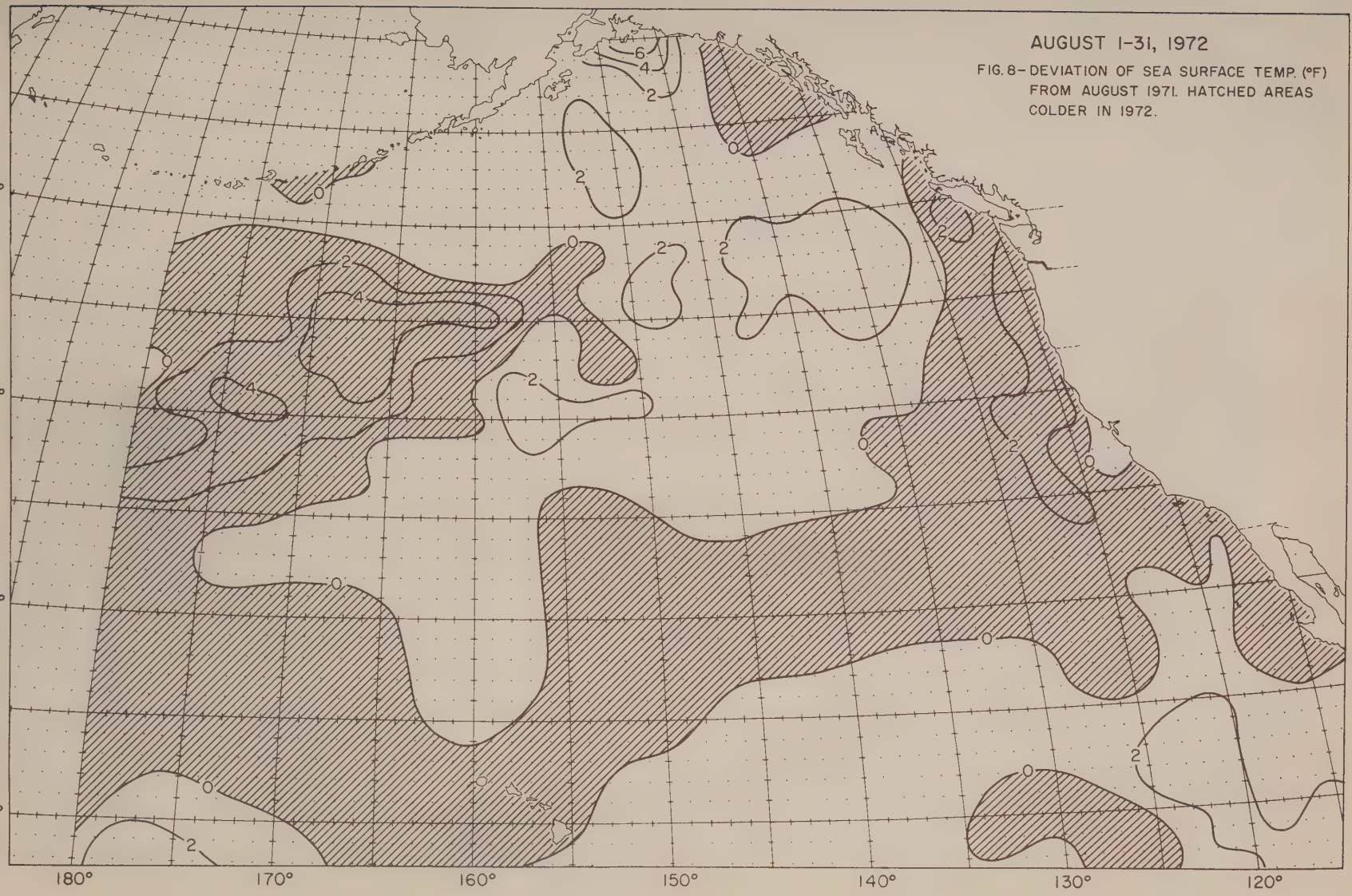

AUGUST 1-31, 1972
FIG.5-MEAN SEA SURFACE TEMPERATURE (°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

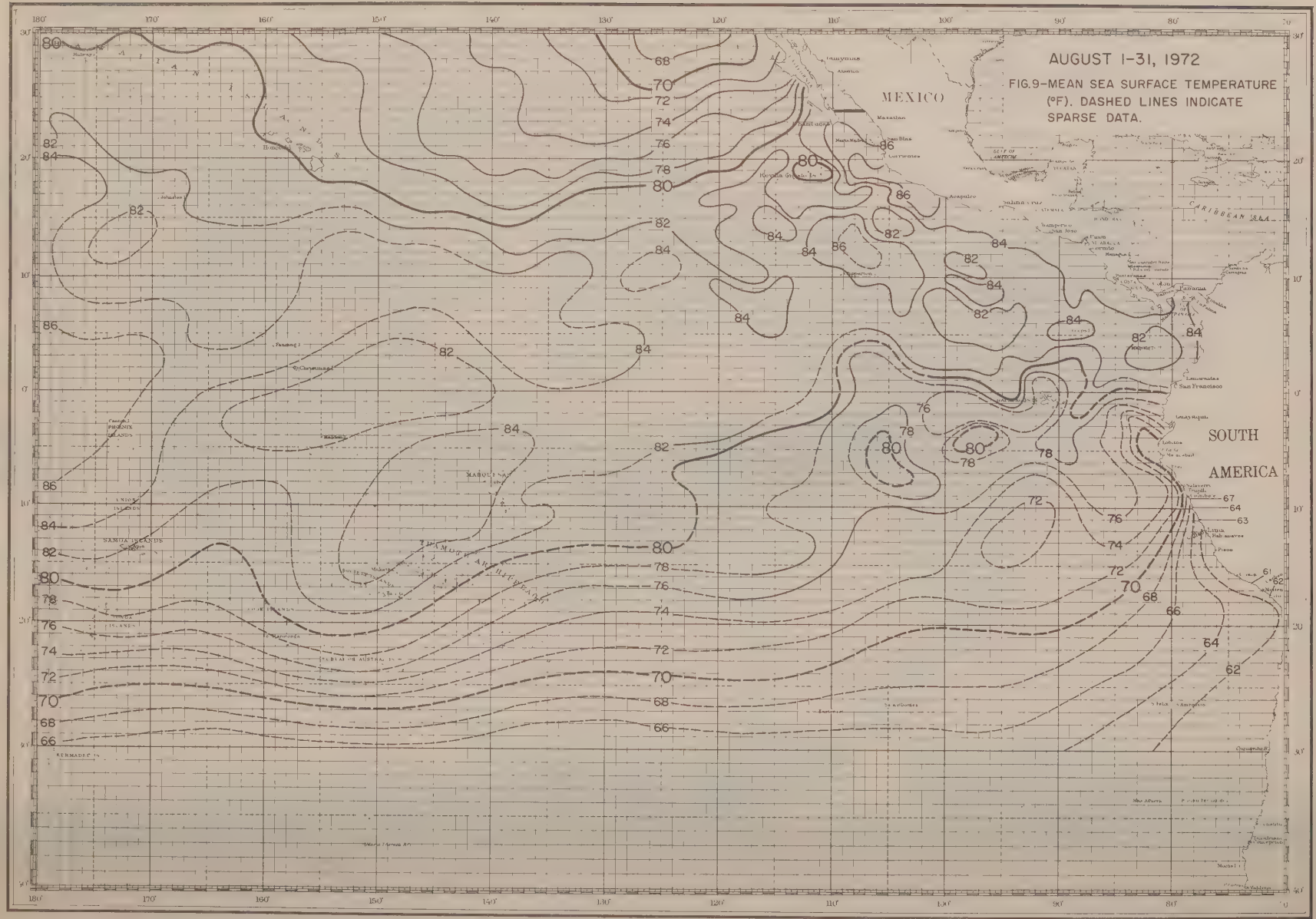
AUGUST 1-31, 1972

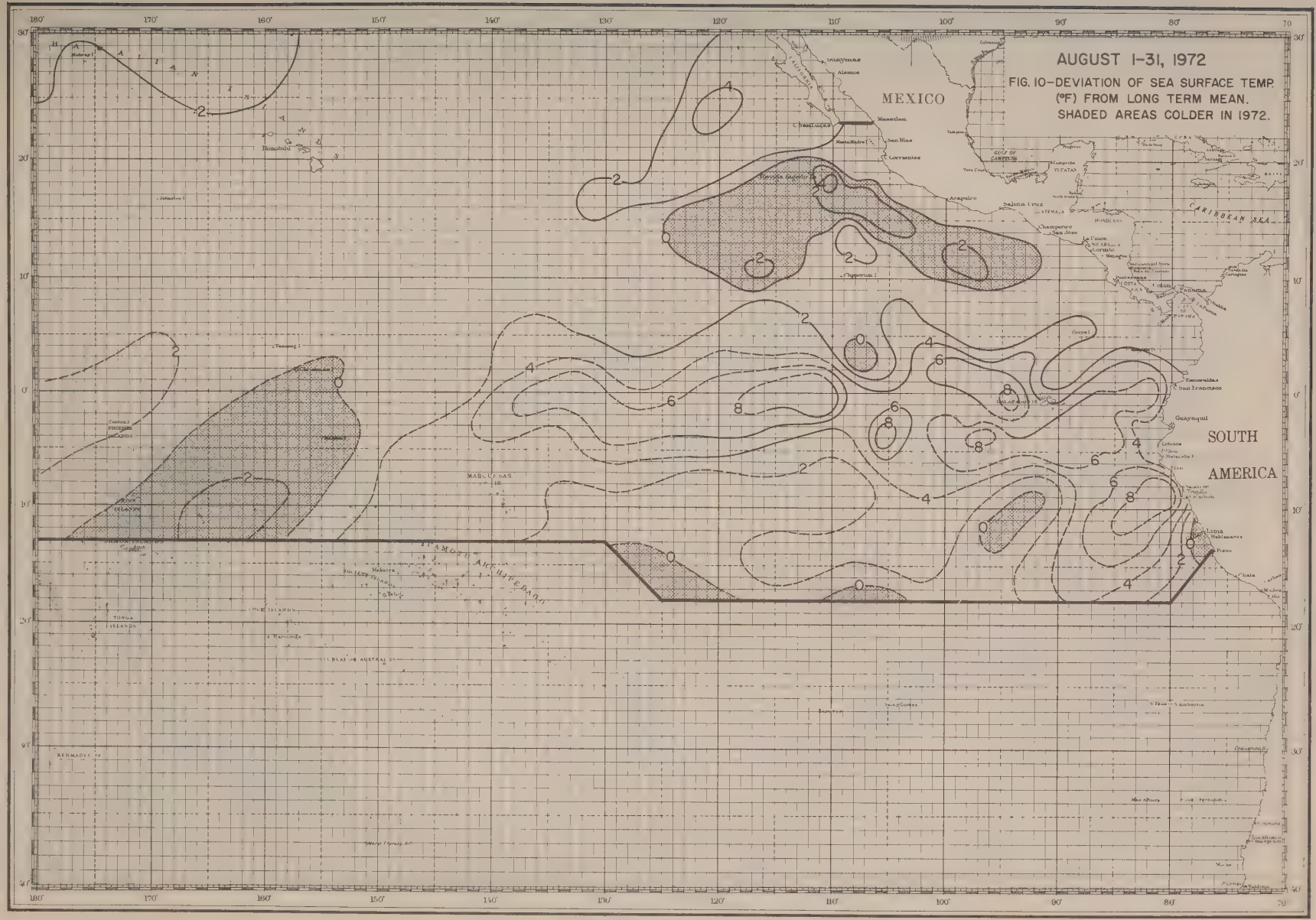
FIG.6 - MEAN SEA SURFACE TEMPERATURE (°F)

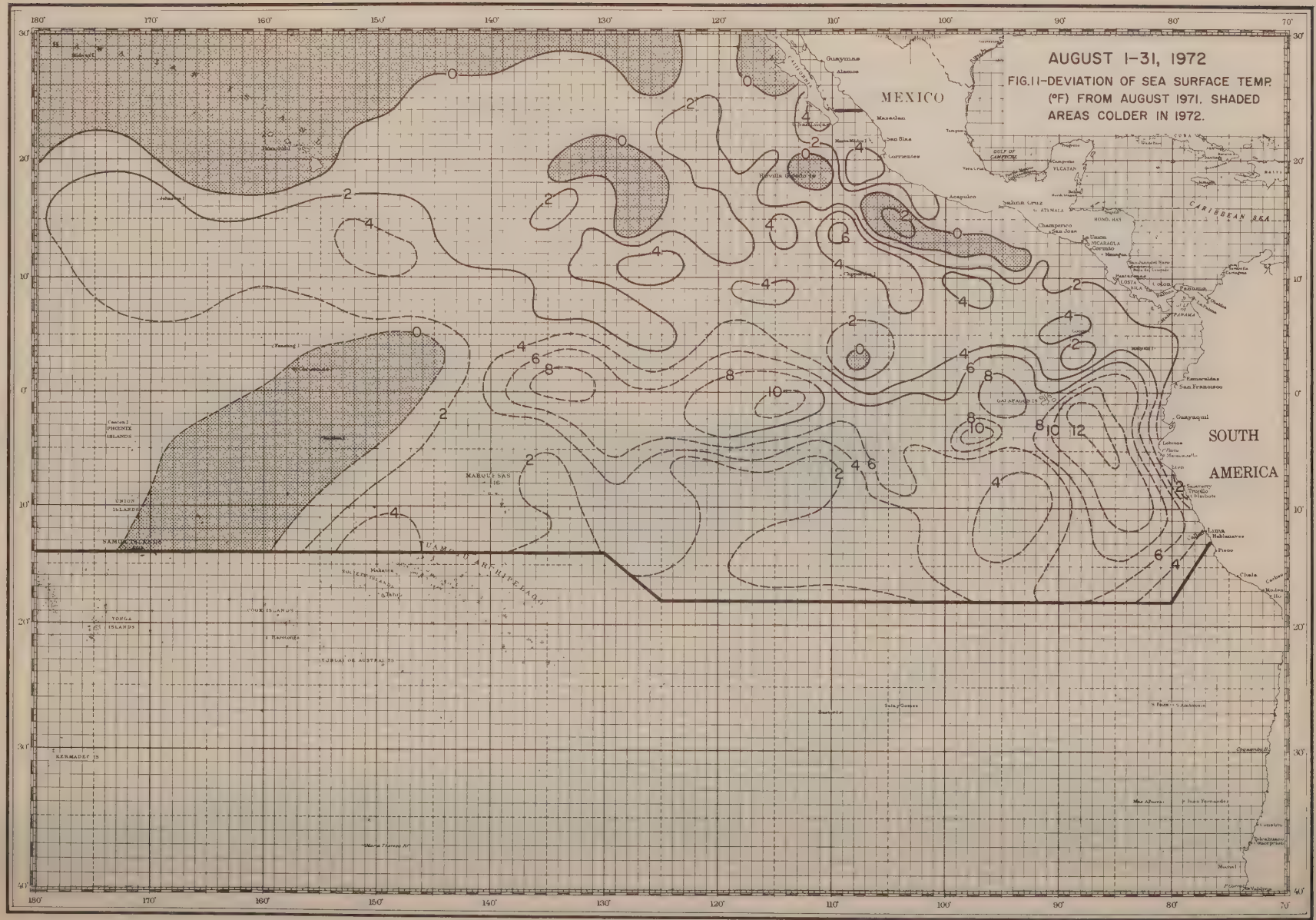



AUGUST 1-31, 1972
FIG. 7–DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1972.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4

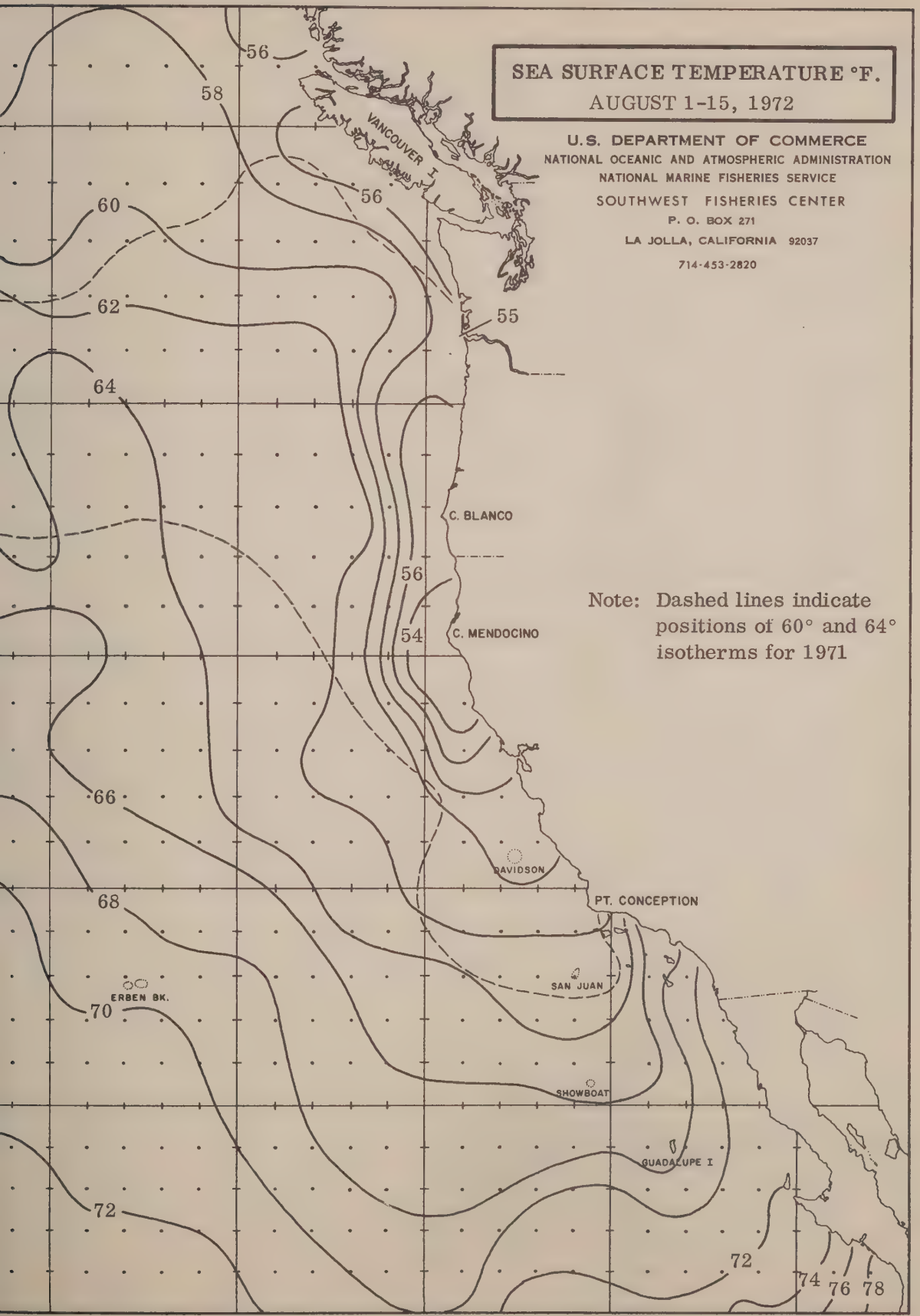

AUGUST 1-31, 1972
FIG. 8 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM AUGUST 1971. HATCHED AREAS COLDER IN 1972.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


AUGUST 1-31, 1972
FIG.9-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
SAMOA ISLANDS
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°
40°

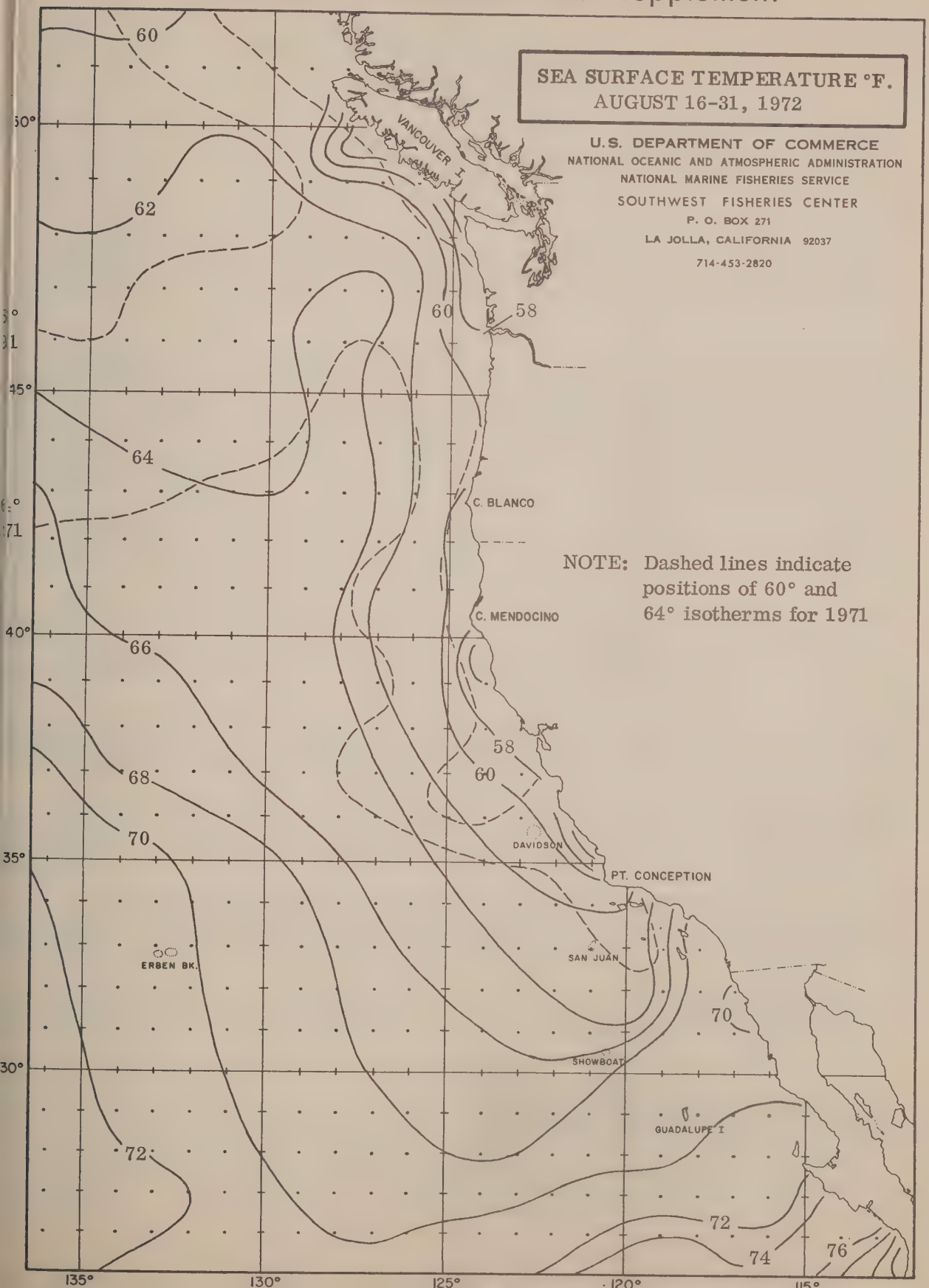

AUGUST 1-31, 1972
FIG. 10-DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. SHADED AREAS COLDER IN 1972.
MEXICO
CARIBBEAN SEA
SOUTH AMERICA
HAWAIIAN ISLANDS
Honolulu
Acapulco
Salina Cruz
Guayaquil
Lima
Callao
Chile
TONGA ISLANDS
MARQUESAS
TUAMOTU ARCHIPELAGO
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°
40°


AUGUST 1-31, 1972
FIG.11-DEVIATION OF SEA SURFACE TEMP. (°F) FROM AUGUST 1971. SHADED AREAS COLDER IN 1972.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
YUCATAN
Guaymas
Alamos
Mazatlan
San Blas
Acapulco
Salina Cruz
Champerico
Corinto
Balboa
Panama
Guayaquil
Esmeraldas
San Francisco
Lima
Callao
Pisco
Chala
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Juan Fernandez
Mas Afuera
Mas Afuera
Easter I.
Pitcairn I.
Henderson I.
Oeno I.
Ducie I.
Gambier Is.
Tuamotu Archipelago
Tahiti
Makatea
Pukapuka
Cook Islands
Tonga Islands
Samoa Islands
Union Islands
Phoenix Islands
Kermadec Is.
Tubuai Is.
Rapa
Marotiri
Sala y Gomez
Nazca
Mocha
Juan Fernandez
Galapagos Is.
Malpelo I.
Gorgona I.
Malpelo
Tumaco
Buenaventura
Cabo Blanco
Manta
Salinas
Puerto Pizarro
Talara
Paita
Chimbote
Huacho
Pisco
Nicaragua
Costa Rica
Panama
Honduras
Guatemala
Chiapas
Oaxaca
Guerrero
Michoacan
Colima
Jalisco
Nayarit
Sinaloa
Sonora
Baja California
Revillagigedo Is.
Socorro I.
Clarion I.
Johnston I.
Hawaii
Oahu
Kauai
Niihau
Midway Is.
Wake I.
Marcus I.
Marcus Reefs
Marcus Reefs
Marcus Reefs

FISHING INFORMATION – supplement



FISHING INFORMATION – supplement



UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92037

FISHING INFORMATION
BULLETIN NO. 72-4

ALBACORE FISHING SPOTTY

So far this fishing season the albacore fishery has tended to be spread over several sections of the coast and, though very good fishing has been reported on some days, in general fishing has tended to be somewhat sporatic. At the d of July albacore landings along the coast totaled about 3000 tons as compared to about 4000 tons at the same time last ar.

During the past two weeks commercial boats fished mainly in the areas from Point Conception to Guide Seamount d Cape Blanco to Vancouver Island. Scattered catches were also reported from Baja California, Point Arena and Eureka. shing in northern waters was good 100 to 140 miles west of Cape Blanco to Coos Bay during the third week of July. Catches these areas ranged from 70 to 200 fish per day for most boats, with highs of more than 300 fish from July 17-19. On ly 20 high catches of 400 fish were made by boats fishing 60 miles west of Newport to Tillamook Head and boats from Coos y entered this area. Many boats caught 300 to 400 fish per day, with high scores of 700 to 800, on July 21-23 in this area. e fish were of mixed sizes, but averaged 16 to 18 pounds. Fishing remained good with 400 to 500 fish top scores on July 24, t fishing slackened during the last week of July with boats averaging less than 100 fish per day. On July 25 good catches re reported on mixed-size fish from Cape Cook to Grays Harbor, but at the end of July fishing slowed and was spotty.

Fishing off Central California was hampered by bad weather during most of the past two weeks. However, boats d good fishing on mixed sized fish from Guide Seamount to Point Conception during the third week of July. Catches averaged 0 to 200 fish per day from July 17-19, but by July 20 winds increased and hampered fishing.

At the end of July the baitboat Linda on charter to the American Fishermen's Research Foundation and working operatively with the NMFS La Jolla Laboratory had tagged a total of 351 albacore, mostly in southern California waters.

Sport catches of albacore from San Diego based charter boats averaged about two fish per passenger on July 17, e fish per passenger on July 18-20, and less than one fish per passenger from July 21 to month's end.

Prevailing weather conditions along the central California coast between Cape Mendocino and Point Conception allowed a surface temperatures to increase as much as 2° F faster than normal in waters offshore this region. In addition, water mperatures along the coast from the Columbia River south to Punta Eugenia that were either slightly above or below normal ring the July 1-15 period changed to 1-2° F above normal over the entire area.

During the July 16-31 interval, the 60° F isotherm lies about 40 miles farther offshore between the Columbia River d Cape Blanco than during the same period last year. Between Cape Blanco and Point Arena, it occupies nearly the same sition as in 1971, while its position west of San Francisco out to 126 W is about 200 miles north of where it was at this ne last year.

According to the Extended Forecast Division of the National Weather Service, sea level pressures are expected to slightly above normal during the first 2 weeks of August, while temperatures are expected to be above normal over the terior regions of the Pacific southwest. These conditions should cause periods of strong north-northwesterly winds and lses of intense upwelling along the Oregon and northern and central California coasts.

It is expected that fishing in central California waters will improve during the next two weeks, providing weather nditions allow fishing effort. Good fishing conditions are also indicated along the southern Oregon-northern California asts. Sports fishing for albacore off southern California is expected to be scattered due to warm water conditions.

gust 1, 1972

Staff, Fishery-Oceanography Investigations
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UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92037

FISHING INFORMATION
BULLETIN NO. 72-5

ALBACORE FISHING INCREASES OFF PACIFIC NORTHWEST

Commercial boats had good fishing from Coos Bay, Oregon to Cape St. James, Queen Charlotte Islands during the past two weeks. Although fishing was spotty, average scores were consistently better than 75 fish per jigboat and one ton per baitboat per day. During this period, most boats worked from Newport to Cape Flattery; however, fishing was good from August 4-10 in an area west of Coos Bay, and scores off Vancouver Island and Cape St. James began increasing on August 4. By August 15, catches off northern Oregon and Washington had decreased, while a small fleet off Cape St. James and Vancouver Island still reported good average scores of 200 fish per day and high scores of better than 400 fish per day.

Top scores by jigboats off northern Oregon and Washington were 200-400 fish per day, and baitboats reported a few days of 15-ton stops. Most of the catches have been made in 61-62° F waters on fish of mixed sizes averaging between 15 and 20 pounds. Smaller fish of 10-12 pounds were caught off Coos Bay on August 2 and 70 miles off Cape St. James on August 14. Boats in the Pacific northwest are currently fishing about 100 miles off the U.S. coast.

The areas south of Cape Blanco produced scattered scores during the first two weeks of August. On August 1, one boat had 140 fish west of Crescent City, but effort and catches in this area have been small since then. Fishing has also been poor and scattered near the Gorda Seavalley and west of Point Reyes. Only off Central California, where jumping and schooled albacore were seen, have jigboats had scores of 60 fish per day in the past two weeks, with best scores in the Sur Canyon area on August 9. Rough seas hampered fishing until August 3, but even when weather permitted, catches were still low.

Purse seiners caught albacore from 130 miles off Cape Colnett and 40-65 miles south of the Coronado Islands. San Diego sportboats also fished in these areas, and except for August 1-2 and 9-11, catches have been less than one fish per passenger.

The baitboat Linda on charter to the AFRF continued to tag albacore. As of August 7, 508 albacore had been tagged and released.

The R/V David Starr Jordan left San Diego on August 1 to conduct an albacore-oceanography study off Monterey and Point Sur. During the first part of the cruise (through August 11) Jordan took a series of hydrographic stations from 140 miles offshore to the beach and trolled for albacore. The object of this work is to understand better the association of albacore and their food chain with the frontal zone produced by the upwelling of cold, enriched water. Jordan found large quantities of tuna forage and many indications of fish but catches were intermittent. In the first eight days, 94 albacore were taken ranging from 6 to 25 pounds (mostly large). Many of these catches were associated with a 2-degree thermal front between the Monterey Sea Valley and Sur Canyon. On August 15, Jordan began a cooperative sonic tagging experiment with the baitboat Linda. Albacore caught in good condition are being released with a sound-emitting tag and tracked with hydrophone equipment aboard the Linda. The findings will aid our understanding of local movement and behavior of albacore.

During the August 1-15 period, strong winds along the coast from the northwest tip of Vancouver Island south to Point Reyes decreased seasonal warming of sea surface temperatures from the coast out to 126 W. As a result, temperatures that were as much as 2° F above long-term averages during the July 16-31 period in this region decreased to slightly below average values. In addition, the increased evaporative cooling and upwelling that occurred as a result of these winds created fairly strong horizontal temperature gradients parallel to the coast between the Columbia River and San Francisco, a feature that was absent in the temperature field for the previous two week period.

During the August 1-15 interval, the 60° F isotherm lies about 100 miles farther offshore between Cape Flattery and Cape Blanco than during the same period in 1971. South of Cape Blanco, its position is 100 to 40 miles farther offshore of where it was at this same time last year.

The Extended Forecast Division of the National Weather Service expects sea level pressures to be near or slightly below average over the eastern North Pacific from mid-August to mid-September, while temperatures are expected to be near or slightly below average over the west coast states. These conditions should cause fewer periods of strong northwesterly winds and pulses of intense upwelling than usual at this time of the year. In addition, the more favorable wind conditions should allow boats to work for longer periods at sea without having to run into port because of rough seas.

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